

REMARKS

Claims 1-20 remain pending in the application with the present amendments. Applicants appreciate the early indication of allowability in the Office Action as to claims 5-7 and 15-17. Claims 1-4, 10-14 and 20 were rejected under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 6,548,882 B1 to Zwicknagl et al. ("*Zwicknagl*") and claims 8-9 and 18-19 were also rejected under 35 U.S.C. §103(a) as being obvious over *Zwicknagl* in view of U.S. Patent No. 6,777,782 B1 to Essliffe ("*Essliffe*"). For the following reasons, Applicants respectfully traverse these rejections, and submit that the presently pending claims are patentably distinguished from *Zwicknagl* and distinguished from the combination of *Zwicknagl* and *Essliffe*. Reconsideration and withdrawal of the rejections is respectfully requested.

In order to establish a prima facie case of obviousness, the cited reference must, as combined with the teachings of other references, or combined with common and indisputable knowledge, teach all of the elements of the invention recited in the claims. This burden has not been met here.

The invention recited in claim 1 requires that an *extrinsic base of the transistor be spaced from the emitter by a gap*, wherein the gap includes at least one of an air gap and a vacuum void. However, *Zwicknagl* fails to teach or suggest a structure in which an extrinsic base of a transistor is spaced from an emitter of the transistor by an air gap or vacuum void. *Zwicknagl* merely describes a transistor structure which in one embodiment has an "*electrically conductive air bridge*" (1) which connects together the emitter fingers (5) of a transistor. (col. 4, lns. 56-57). In another embodiment described in *Zwicknagl*, an air bridge "electrically and thermally connects the base fingers [of a

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transistor] to one another." (col. 5, Ins. 62-63). As described in *Zwicknagl* at col. 1, Ins. 47 through 53, an air bridge is a conductive element used for providing thermal and electrical interconnection between elements.

Nowhere in *Zwicknagl* is there described an air bridge or other structure which matches the recited structure in claim 1 that an extrinsic base of the transistor be spaced from the emitter by ...an air gap or vacuum void. On the contrary, *Zwicknagl* shows a transistor in which the emitter 2 contacts the base region 3, without any gap or void between the emitter 2 and the base region 3. (See, FIG. 1, and col. 4, Ins. 55-61). While a set of "emitter fingers 5 are mounted as contacts on the emitters" and similar contacts mounted on the base "in the form of fingers," it is evident from this passage in *Zwicknagl* that these "finger" elements are different from the emitter and the base. That is, the finger elements cannot be considered to be the emitter and the base of the transistor themselves. There remains no teaching in *Zwicknagl* of a structure in which an extrinsic base of a transistor is spaced from an emitter of the transistor by an air gap or vacuum void. Similarly, *Zwicknagl* neither teaches nor suggests a fabrication method as recited in claim 11, which contains similar recitations.

Nor does *Essilfie* provide the teachings which *Zwicknagl* lacks with respect to the invention recited in the presently pending claims. *Essilfie* neither teaches nor suggests an extrinsic base of a transistor being spaced from an emitter by an air gap or vacuum void. Nor does *Zwicknagl* or *Essilfie* teach or suggest the features recited in claims 2-4 or claims 12-14. As discussed above, neither reference teaches or suggests a structure in which an air gap or a vacuum void is disposed between an extrinsic base and an emitter of a bipolar transistor, nor one in which a semiconductor layer overlies an

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intrinsic base and the emitter and the extrinsic base overlie the semiconductor layer.

Finally, Applicants have reviewed U.S. Patent No. 6,586,782 to Finlay, and assert that it also neither alone, nor in combination with other cited references, teaches or suggests the invention as recited in the independent claims 1 and 11.

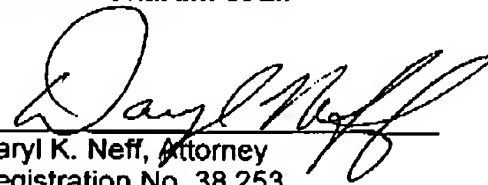
Accordingly, in view of the amendments and remarks herein, it is believed that all claims of the application are now in condition for allowance. However, if for any reason the Examiner does not believe that such action can be taken at this time, the Examiner is requested to telephone the Applicants' attorney at the number indicated below to discuss any issues that may remain.

It is believed that no fee is due in connection with the filing of this Amendment. However, if any fee is due, authorization is granted to debit the Deposit Account No. 09-0458 of the Assignee. If there is an overpayment, please credit the same account.

Dated: November 30, 2004

Respectfully submitted,
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